

## **REMARKS—General**

By the above amendment, Applicants have amended the title to emphasize the novelty of the invention.

1 The specification has been amended editorially and to correct those errors noted by the Examiner. Also applicants have rewritten claims 3-8 to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention patentably over the cited prior art.

### **The Objection To The Specifications And The Claims Rejection Under 112**

2 The specification was objected to under 37 CFR 1.2 (b)(5) because the pages of the specification, including claims and abstract were not numbered consecutively, starting with 1. Applicants request reconsideration and withdrawal of this objection, enclosed is the amended patent, consecutively numbered starting with 1.

### **The Rejection of Claim 5-8 Is Overcome**

3 The claims 5-8 were rejected under 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. And under 101 because the recitation of the process, without setting forth the steps involved in the process. Claim 5-8 has been rewritten as claims 11-14 to define patentability. Applicants request reconsideration of this rejection for the following reasons.

(1) Claim 5 has been put into the form of a proper process claim by adding "passing an air stream to be filtered through a machine for air filtration comprising".

(2) Claim 6 has been put into the form of a proper process claim by replacing the phrase "further comprising the step(s) of" with the phrase "wherein the machine for air filtration further comprises".

(3) Claim 7 and 8 has been put into the form of a proper process claim by replacing the phrase

"further comprising" with the phrase "wherein the machine for air filtration further comprises". "wherein the machine for air filtration further comprises".

(4) Claim 8 has been put into the form of a proper process claim by eliminating the phrase "a variety of feasible options" and rewriting the first part of the claim as "A multiple step process for air filtration that is self cleaning as claimed in claim 6".

**The Rejection of Claims 1, 2 and 4 on Fleisher, Hirose, Hasama et al., and Gadgil et al. is Overcome**

4 The O.A. rejected claims 1, 2 and 4 on Fleisher, Hirose, Hasama et al. and Gadgil et al.

Applicants request reconsideration of this rejection for the following reasons.

(1) There is no justification, in Fleisher, Hirose, Hasama et al. and Gadgil et al., or in any other prior art references which suggest (express or implied) that these references be combined, much less combined in the manner proposed.

(2) It would be necessary to make modifications, not taught in the prior art, in order to combine the references in the manner suggested. Even if Fleisher, Hirose, Hasama et al. and Gadgil et al. were to be combined in the manner proposed, the proposed combination would not Fleisher, Hirose, Hasama et al. and Gadgil et al. show all of the novel physical features of claims 1, 2 and 4.

(3) These novel physical features of claims 1, 2 and 4 produce new and unexpected results and hence are unobvious and patentable over these references.

(4) The fact that a large number of references (over three) must be combined to meet the invention is evidence of unobviousness.

**The References And Differences Of The Present Invention Thereover**

5 Prior to discussing the claims and the above four points, applicants will first discuss the references and the general novelty of the present invention and its unobviousness over the references.

**6 Fleisher** discloses a self cleaning machine for air filtration comprising perforated motor driven disks, a spray bar, and a supply line, a wet tank, a liquid level float, a liquid and sediment drain port, a chemical injection port and a power source. Applicants invention, *as claimed*, comprises counter rotating disks, spray bars located to spray surface of counter rotating disks, a liquid level sensor and chemical injection port is located on the wet tank below the surface of the liquid and distinguishes over Fleisher's stacked disks, Fleisher's spray bars wet the disks from above, Fleisher uses a float to moderate liquid levels, Fleisher's chemical injection port resides above the surface of the solution in the reservoir. That is, applicants invention has novel physical features not shown in—the reference. Fleisher does not disclose a recirculation pump, an ultrasonic or subsonic transducer, or ultraviolet submersible bulbs.

**7 Hirose's** air filtration machine comprises a recirculation pump, a supply line for providing liquid to the spray bar from the wet tank. The OA suggests that combination of Fleisher's air filtration and Hirose's recirculation pump would be obvious to one of ordinary skill in the art at the time. If combination of Hirose's recirculation pump and supply line to the spray bar and Fleisher's air filtration machine were in fact obvious, because of its advantages, those skilled in the art surely would have implemented it by now. Hirose does not disclose an ultrasonic or subsonic transducer or ultraviolet submersible bulbs.

**8 Hasama's** exhaust cleaning system comprises an ultrasonic transducer for cleaning a rotating filter belt immersed in a wet tank. Hasama's belted filter is formed by either metal wires or metal sheets, filter is immersed in cleaning liquid and ultrasonically cleaned. Hasama's system is a exhaust cleaning system, and does not disclose a subsonic transducer or ultraviolet submersible bulbs. It would be necessary to make modifications, not taught in the prior art, in order to combine Fleisher and Hasama in the manner suggested. Furthermore it is suggested that one of ordinary skill in the art at the time of the invention would have recognized that a subsonic transducer could have been used in place of or in addition to the ultrasonic transducer. Given that a ultrasonic transducer aids in release of particulate from surfaces, whereas a subsonic transducer would agitate with sound causing particulate suspension in a liquid. The problem solved by the

subsonic transducer was never before recognized in this field. The recognition of an unrecognized problem militates in favor of the patentability.

**9** Gadgil's apparatus for low cost water disinfection comprising a ultraviolet light. Gadgil's light is not in the water, the function is to irradiate the water as it flows into a holding tank and or after collection in the storage container. It is suggested that although Gadgil uses one bulb that one skilled in the art would recognize that several bulbs could be used in case one fails, The reason the applicants wet tank contains several ultraviolet submersible bulbs is for thorough saturation. This reference is from a different technical field than that of the invention—that is "nonanalogous art."

10 Therefore applicants submit that claims 1, 2 and 4 is allowable over the cited references and solicits reconsideration and allowance.

**The Rejection of Claim 3 on Fleisher, Hirose, Hasama et al., and Gadgil et al. As Applied To In Claim 1 And Further In View Of Alliger Is Overcome**

11 The O.A. rejected claim 3 on Fleisher, Hirose, Hasama et al. and Gadgil et al. as applied to to claim 1 above, and further in view of Alliger. Applicants request reconsideration of this rejection for the following reasons.

1) There is no justification, in Fleisher, Hirose, Hasama et al., Gadgil et al., and Alliger or in any other prior art references which suggest (express or implied) that these references be combined, much less combined in the manner proposed.

(2) The reference does not teach what the examiner relies upon it as supposedly teaching.

(3) Applicant's invention solves a different problem than the reference.

**The References And Differences Of The Present Invention Thereover**

12 Prior to discussing the claim and the above three points, applicants will first discuss the references and the general novelty of the present invention and its unobviousness over the

references.

13 **Alliger** discloses a metallic filter having a treated surface comprising a synthetic coating. Alliger's application of a plastic coating onto the metallic filter disks to prevent corrosion of the disks. Applicants treatment of disk, disks or belt is, a high tooth texture and or stickifier, which increases particulate impingement onto surface of filter. This reference does not teach what the Examiner relies upon it as supposedly teaching.

14 Therefore applicants submit that claim 3 is allowable over the cited references and solicits reconsideration and allowance.

**The Rejection of Claims 5-8 on Fleisher, Hirose, Hasama et al., and Gadgil et al. is Overcome**

15 The O.A. rejected claims 5-8 under 103 on Fleisher, Hirose, Hasama et al. and Gadgil et al. Claim 5-8 has been rewritten as claims 11-14 to define patentability. Applicants request reconsideration of this rejection for the following reasons.

(1) There is no justification, in Fleisher, Hirose, Hasama et al. and Gadgil et al., or in any other prior art references which suggest (express or implied) that these references be combined, much less combined in the manner proposed.

(2) It would be necessary to make modifications, not taught in the prior art, in order to combine the references in the manner suggested. Even if Fleisher, Hirose, Hasama et al. and Gadgil et al. were to be combined in the manner proposed, the proposed combination would not Fleisher, Hirose, Hasama et al. and Gadgil et al. show all of the novel physical features of claims 5-8.

(3) These novel physical features of claims 5-8 produce new and unexpected results and hence are unobvious and patentable over these references.

(4) The fact that a large number of references (over three) must be combined to meet the invention is evidence of unobviousness.

(5) The invention solves a long felt, long existing, but unsolved need.

### **The References And Differences Of The Present Invention Thereover**

16 Prior to discussing the claims and the above five points, applicants will first discuss the references and the general novelty of the present invention and its unobviousness over the references.

17 **Fleisher** discloses a self cleaning machine for air filtration comprising perforated motor driven disks, a spray bar, and a supply line, a wet tank, a liquid level float, a liquid and sediment drain port, a chemical injection port and a power source. Applicants invention, *as claimed*, comprises counter rotating disks, spray bars located to spray surface of counter rotating disks, a liquid level sensor and chemical injection port is located on the wet tank below the surface of the liquid and distinguishes over Fleisher's stacked disks, Fleisher's spray bars wet the disks from above, Fleisher uses a float to moderate liquid levels, Fleisher's chemical injection port resides above the surface of the solution in the reservoir. That is, applicants invention has novel physical features not shown in—the reference. Fleisher does not disclose a recirculation pump, an ultrasonic or subsonic transducer, or ultraviolet submersible bulbs. The examiner notes that the mist eliminator and heater are seen as forming a dryer assembly, the applicant applies new technology, a one piece inline dryer assembly. Fleisher does not disclose a recirculation pump, an ultrasonic or subsonic transducer, ultraviolet submersible bulbs, a toxic and noxious gas detection and recognition and radiation detection, a automatic safety shut down with safety charcoal filter, a audible and visual alarm, a ultraviolet saturation chamber, a secondary wet filter, a secondary air diffuser, or a secondary ultraviolet saturation chamber.

18 **Hirose's** air filtration machine comprises a recirculation pump, a supply line for providing liquid to the spray bar from the wet tank. The OA suggests that combination of Fleisher's air filtration and Hirose's recirculation pump would be obvious to one of ordinary skill in the art at the time. If combination of Hirose's recirculation pump and supply line to the spray bar and Fleisher's air filtration machine were in fact obvious, because of its advantages, those skilled in the art surely would have implemented it by now. Hirose does not disclose an ultrasonic or subsonic transducer, ultraviolet submersible bulbs, a toxic and noxious gas detection and recognition and radiation

detection, a automatic safety shut down with safety charcoal filter, a audible and visual alarm, a ultraviolet saturation chamber, a secondary wet filter, a secondary air diffuser, or a secondary ultraviolet saturation chamber.

19 **Hasama's** exhaust cleaning system comprises an ultrasonic transducer for cleaning a rotating filter belt immersed in a wet tank. Hasama's belted filter is formed by either metal wires or metal sheets, filter is immersed in cleaning liquid and ultrasonically cleaned. Hasama's system is a exhaust cleaning system, Hasama does not disclose a subsonic transducer or ultraviolet submersible bulbs. It would be necessary to make modifications, not taught in the prior art, in order to combine Fleisher's air filtration and Hasama's exhaust cleaning system in the manner suggested. Furthermore it is suggested that one of ordinary skill in the art at the time of the invention would have recognized that a subsonic transducer could have been used in place of or in addition to the ultrasonic transducer. Given that a ultrasonic transducer aids in release of particulate from surfaces, whereas a subsonic transducer would agitate with sound causing particulate suspension in a liquid. The problem solved by the subsonic transducer was never before recognized in this field. The recognition of an unrecognized problem militates in favor of the patentability. Furthermore, Hasama does not disclose a toxic and noxious gas detection and recognition and radiation detection, a automatic safety shut down with safety charcoal filter, a audible and visual alarm, a ultraviolet saturation chamber, a secondary wet filter, a secondary air diffuser, or a secondary ultraviolet saturation chamber.

20 **Gadgil's** apparatus for low cost water disinfection comprising a ultraviolet light. Gadgil's light is not in the water, the function is to irradiate the water as it flows into a holding tank and or after collection in the storage container. It is suggested that although Gadgil uses one bulb that one skilled in the art would recognize that several bulbs could be used in case one fails, The reason the applicants wet tank contains several ultraviolet submersible bulbs is for thorough saturation. This reference is from a different technical field than that of the invention—that is "nonanalogous art." Gadgil does not disclose a toxic and noxious gas detection and recognition and radiation detection, a automatic safety shut down with safety charcoal filter, a audible and visual alarm, a ultraviolet saturation chamber, a secondary wet filter, a secondary air diffuser, or a secondary

ultraviolet saturation chamber.

21 Therefore applicants submit that claims 5-8 is allowable over the cited references and solicits reconsideration and allowance.

**The Rejection of Claims 6 and 7 on Fleisher, Hirose, Hasama et al., and Gadgil et al. as Applied To Claim 5, And In Further View Of Petersen, Berry And Diebert Is Overcome**

22 The O.A. rejected claims 6 and 7 under 103 on Fleisher, Hirose, Hasama et al. and Gadgil et al. as applied to claim 5, and in further view of Petersen, Berry and Diebert. Claims 6 and 7 have been rewritten as claims 12 and 13 to define patentability. Applicants request reconsideration of this rejection for the following reasons.

- (1) There is no justification, in Fleisher, Hirose, Hasama et al., Gadgil et al., Petersen, Berry and Diebert or in any other prior art references which suggest (express or implied) that these references be combined, much less combined in the manner proposed.
- (2) It would be necessary to make modifications, not taught in the prior art, in order to combine the references in the manner suggested. Even if Fleisher, Hirose, Hasama et al. and Gadgil et al., Petersen, Berry and Diebert were to be combined in the manner proposed, the proposed combination would not show all of the novel physical features of claims 6 and 7
- (3) The combination suggested requires a series of separate, combinative steps that are too involved to be considered obvious.
- (4) The fact that a large number of references (over three) must be combined to met the invention is evidence of unobviousness.
- (5) The invention solves a long felt, long existing, but unsolved need.
- (6) One reference is from a very different technical field than that of the invention—that is, it's "nonanalogous art."



(7) If the invention were in fact obvious, because of its advantages, those skilled in the art surely would have implemented it by now. That is—the fact that those skilled in the art have not implemented the invention, despite its great advantages, indicates that it is not obvious.

(8) The whole (that is—the result achieved by the invention) is greater than the sum of its parts (that is—the respective results of the individual references).

### **The References And Differences Of The Present Invention Thereover**

23 Prior to discussing the claims and the above eight points, applicants will first discuss the references and the general novelty of the present invention and its unobviousness over the references.

24 **Petersen's** discloses an air filtration machine comprising an air diffuser. The examiner suggests it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the air diffuser of Petersen into the air filtration process of Fleisher to provide improved air distribution and to prevent large debris from entering the air filtration machine. Applicants invention, *as claimed*, comprises, air diffuser is located after the filter to disrupt linear air flow, to increase exposure of any remaining particulate to the ultraviolet saturation chamber, this increases the efficiency of the air filtration process, distinguishes over Petersen's air diffuser is located before the filter, to prevent large debris from entering the filter, that is applicant has novel physical features not shown in the reference. Petersen does not disclose a toxic and noxious gas detection and recognition and radiation detection, a automatic safety shut down with safety charcoal filter, a audible and visual alarm, a ultraviolet saturation chamber, a secondary wet filter, a secondary air diffuser, or a secondary ultraviolet saturation chamber.

25 **Berry's** automatic response building defense system and method comprises, a toxic and noxious gas and radiation detection and recognition system with automatic safety shut down and audible and visual alarms. It has been suggested that one of ordinary skill in the art at the time the invention was made would incorporate Berry's system into the process of Fleisher. The

combination suggested would require a series of combinative steps that are too involved to be obvious. Furthermore this reference is from a very different technical field than that of the invention—that is, it's "nonanalogous art." There is no justification or any other prior art references which suggest (express or implied) that these references be combined, much less combined in the manner proposed. Berry does not disclose a safety charcoal filter, a ultraviolet saturation chamber, a secondary wet filter, a secondary air diffuser, or a secondary ultraviolet saturation chamber.

26 **Diebert** discloses a air filtration process comprising an ultraviolet saturation chamber. The examiner suggests it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ultraviolet saturation chamber of Diebert into the process of Fleisher. There is no justification or any other prior art references which suggest (express or implied) that these references be combined, much less combined in the manner proposed. Diebert does not disclose a safety charcoal filter, a secondary wet filter, a secondary air diffuser, or a secondary ultraviolet saturation chamber.

27 Therefore applicants submit that claims 6 and 7 is allowable over the cited references and solicits reconsideration and allowance.

28 **Gorbulsky** a reference of interest, has been cited but not applied against any claim. Applicants have reviewed Gorbulsky, but it does not show applicants invention or render it obvious.

**Fleisher, Hirose, Hasama et al., and Gadgil et al., Alliger, Petersen, Berry, Diebert, Young, Himes et al., Coughlin and Ellner Do Not Contain Justification To Support Their Combination, Much Less In The Manner Proposed**

29 With the regard to the proposed combination of Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry, Diebert, Young Himes et al., Gorbulsky, Coughlin and Ellner. It is well known that in order for any prior-art references themselves to be validly combined for use in a prior-art 103 rejection, *the references themselves* (or some other prior art) must suggest that they be combined. E.g., as was stated in In re Sernaker, 217 U.S.P.Q. 1, 6 (C.A.F.C. 1983):

30 "[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings."

31 As was further stated in Uniroyal, Inc. v. Rudkin-wiley Corp., 5 U.S.P.Q.2d1434 (C.A.F.C. 1988), "[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. . . . *Something in the prior art must suggest the desirability and thus the obviousness of making the combination.*" [Emphasis supplied.] In line with these decisions, recently the Board stated in Ex parte Levengood, 28 U.S.P.Q.2d 1300 (P.T.O.B.A.&I. 1993):

32 "In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present *evidence*, preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art *would have been led* to combine the relevant teachings of the, applied references in the proposed manner to arrive at the claimed invention. . . . That which is within the capabilities of one skilled in the art is not synonymous with obviousness. . . . That one can *reconstruct* and/or explain the theoretical mechanism of an invention by means of logic and sound reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make the claimed invention. . . . Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, that 'would lead' that individual 'to combine the relevant teachings of the references.' . . . Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled

in the art to do what the patent applicant has done.

33 In the present case, there is no reason given in the O.A. to support the proposed combination, other than the statement " It would have been obvious to one skilled in the art at the time the invention was made. . . . " However the fact that Fleisher teaches air filtration is not sufficient to gratuitously and selectively substitute parts of one reference (Hirose's recirculation pump and supply line, Hasama's ultrasonic transducer, Gadgil's ultraviolet light, Alliger's disk treatment, Petersen's air diffuser, Berry's defense system and Diebert's ultraviolet saturation chamber ) for part of another reference in order to meet applicants' novel claimed combination.

34 Applicants submit that the fact that the incorporation of Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert produces advantages militates in favor of *applicants* because it proves that the combination produces new and unexpected results hence is unobvious.

As stated in the above Levengood case,

35 "That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make the claimed invention."

36 Applicant therefore submits that combining Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert is not legally justified and is therefore improper. Thus they submit that the rejection on these references is also improper and should be withdrawn.

37 Applicants respectfully request, if the claims are again rejected upon any combination of references, that the Examiner include an explanation, in accordance with M.P.E.P. 706.02, Ex parte Clapp, 27 U.S.P.Q. 972 (P.O.B.A. 1985), and Ex parte Levengood, supra, a "factual basis to support Examiner's conclusion that it would have been obvious" to make the combination.

**Even If Fleisher, Hirose, Hasama et al., and Gadgil et al., Alliger, Petersen, Berry, and Diebert Were To Be Combined In The Manner Proposed, The Proposed Combination Would Not Show All Novel Physical Features of Claims 1-8.**

38 However even if the combination of Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert were legally justified, Claims 1-8 still have novel (and unobvious) features over the proposed combination. In other words, applicant's invention, as defined by claims 1-8, comprises much more than merely substituting elements from air filtration systems to make a self cleaning air filtration machine and process.

39 Specifically, claims 1 and 5 clearly distinguish applicant's self cleaning air filtration from Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert's or any possible combination thereof, since these claims recite:

"(1) a filter comprising a motor driven belt, disk or counter rotating disks that are perforated, spray bars."

"(5) a air diffuser, a automatic safety shut down with safety charcoal filter".

40 Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert, none show counter rotating disks, spray bars, a air diffuser or a automatic safety shut down with safety charcoal filter, as applicants machine and process does.

41 By adding a subsonic transducer onto the wet tank in claim 2 applicants create a machine that is even more efficient, to hold particulate in suspension in the wet tank. A feature that is missing from Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert. Thus Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert also lack the feature claim 2.....

42 Claim 6 also clearly distinguishes over Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert since it recites:

"(6) further comprises a secondary wet filter, a secondary air diffuser, and a secondary ultraviolet saturation chamber."

43 None of the following, Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry

and Diebert create a addenda for large air handling systems or heavily contaminated environments. As applicants have, as stated above. Therefore Fleisher, Hirose, Hasama et al. and Gadgil et al., Alliger, Petersen, Berry and Diebert cannot have any assurance that their air filtration systems could handle a large building or a heavily contaminated environment.

**The Claims 1-8 Produce New And Unexpected Results And Hence Are Unodvious And Patentable Over These References Under 103**

44 Also applicants submit that claims 1-8 are also unodvious and hence patentable under 103 since, even if combined the references would not meet the claims.

**Conclusion**

45 For all the above reasons, applicants respectfully submit that the errors in the specifications are corrected, the claims comply with section 112, and the claimed distinctions are of patentable merit under section 103 because of the new results (a machine for air filtration that is self cleaning and method for filtering air using same as well as multiple steps for entrapment and neutralization of bacteria, germs and particulate, for detection and recognition of toxic and noxious gases and radiation detection as well as a safety shut down for entire air filtration system in case of detection, with a safety charcoal filter that drops into place to absorb and contain harmful element) over prior art. According, applicant submits that this application is now in full condition for allowance, which action applicants respectfully solicit.

**Conditional Request For Constructive Assistance**

46 Applicants have amended the specification and claims of this application so that they are proper, definite, and define novel structure which is also unodvious. If, for any reason this application is not believed to be in full condition for allowance, applicants respectfully request constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. 2173.02 and 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.